



## MFP<sup>TM</sup>-100

Magnetic Flux Sensor for Turbo-Generators

User's Manual








## Safety Information

The following manual contains information and warnings. They must be followed in order to keep the instrument in a working condition and ensure safe operation.

### Safety and Electrical Symbols

	<b>Warning - Danger</b> - Identifies conditions or practices that could cause physical harm or death.
	<b>Caution</b> - Identifies conditions or practices that could result in a permanent loss of data or damage the measuring chain and/or other equipment to which it is connected.
	<b>Important Information</b> - Identifies important information, hints, and tips that must be read and applied.

### Safety Precautions

 **Warning - Danger**  **Caution**

- To use the described product correctly and safely, read and follow all safety instructions or warnings that appear throughout this manual.
- This product is intended to be used by qualified operators and maintenance personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information before using this product.
- Use this product only as specified in this manual or the protection provided by this product might be impaired.
- When in doubt that safety protection has been impaired, make this product inoperative and secure it against any unintended operation.
- Use caution when working with voltage levels above 30 VAC RMS or 42 VDC. These voltage levels are potential shock hazards.
- Follow all generally accepted safety practices and procedures when working with or around electricity.
- Do not use this product in wet environments.

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This manual is provided solely for guidance. VibrosystM Inc. takes no responsibility or liability for any damage caused by accidents, improper installation or misuse. Liability is limited to the repair and/or replacement of defective products.

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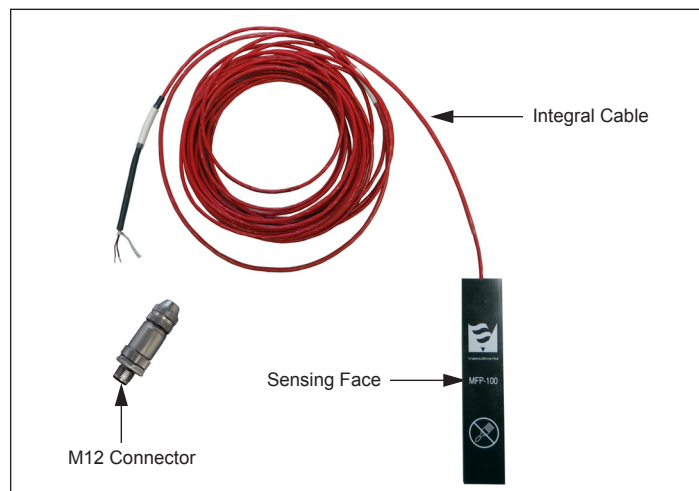


## 1. MFP-100 SENSOR OVERVIEW

### 1.1 Description

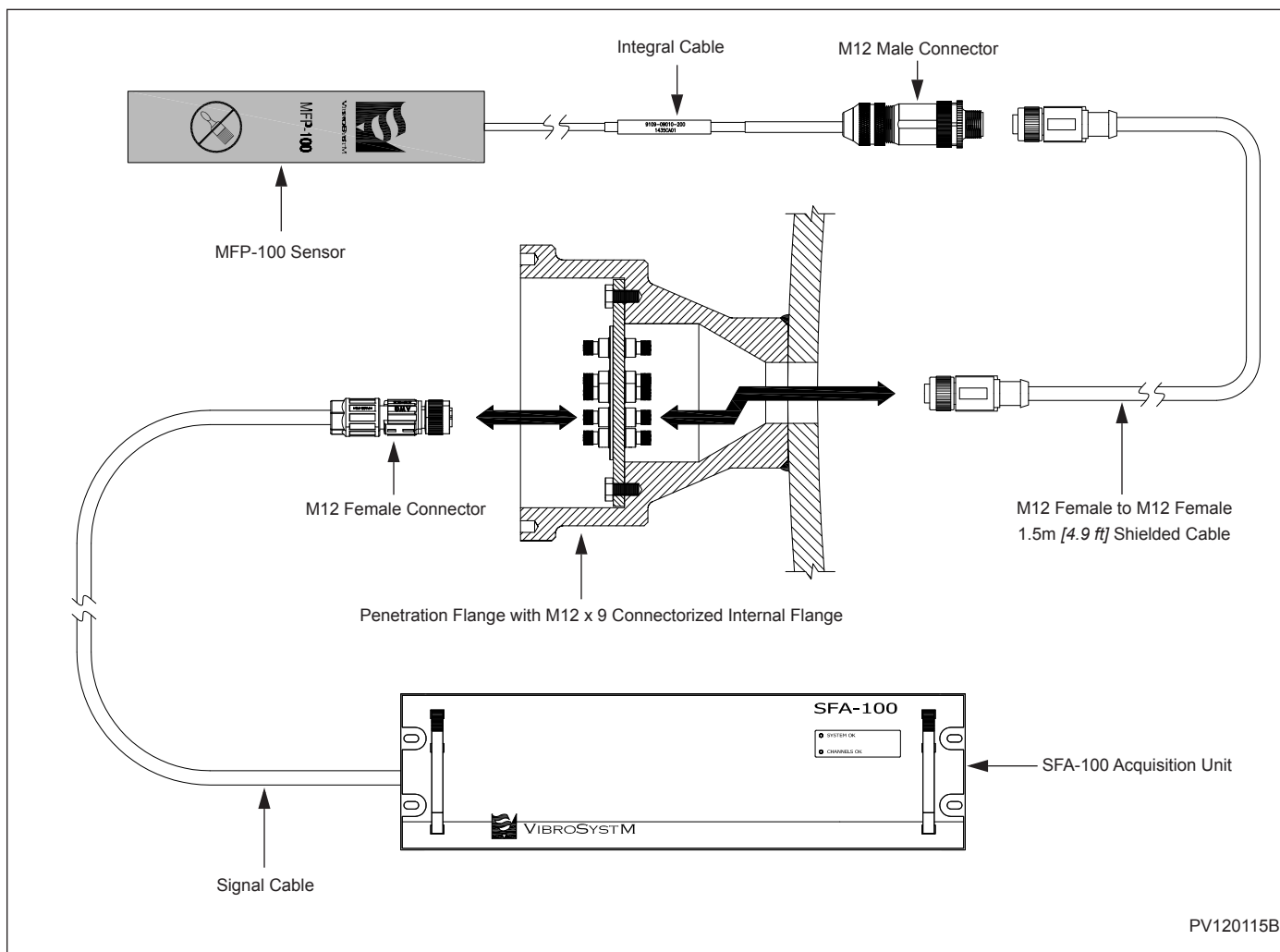
The MFP-100 sensor for turbo-generators is designed to measure magnetic imbalances caused by interturn short-circuits in rotors that contribute to machine vibration, overheating, and excessive stress on rotor and stator components. The received signal is sent to an SFA-100<sup>TM</sup> acquisition unit where the magnetic flux is analyzed to determine if there is in fact a presence of short circuits in the rotor windings.

### MFP-100 Sensor





## Complete Measuring Chain



### 1.2 Main Unit Interventions

- Epoxy resins and silicone will be used inside the unit.
- Protective conduits will be routed outside the unit to protect the cables.
- For hydrogen-cooled generators, a penetration flange with M12x9 connectorized internal flange must be used.



## 2. INSTALLATION OVERVIEW

### Important Information

- VibroSystM technicians should be present during sensor installation and commissioning.

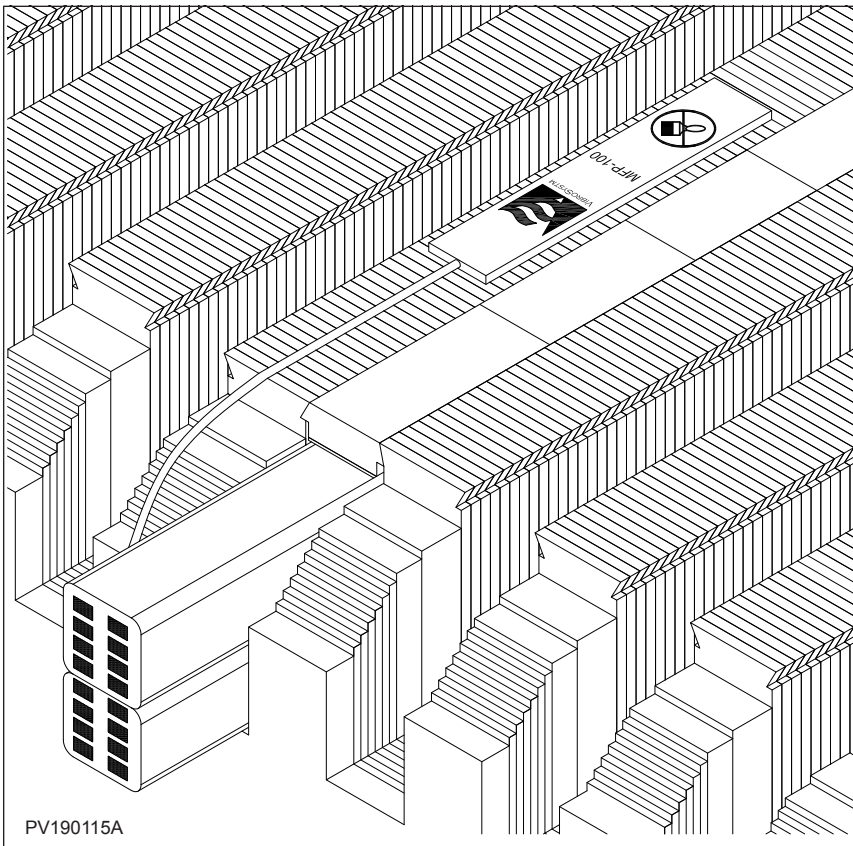
### 2.1 Preliminary Considerations

- The sensor must be glued onto stator core laminations.
- The sensor's integral cable must be well secured against the stator and other structures on which it will be installed.
- The integral cable must be routed before installing the M12 connector.

### Caution

- Never exert traction on the integral cable or M12 connector.

### 2.2 Typical Sensor Installation

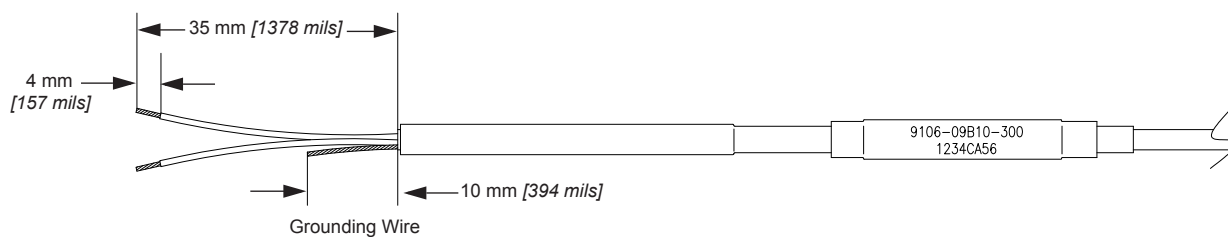




## 2.3 M12 Connector Assembly

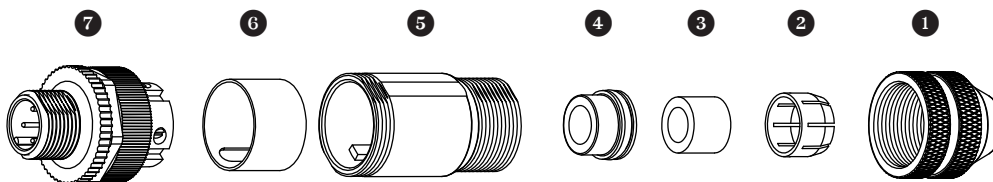
A 4-position M12 connector is supplied with the sensor and must be assembled during installation. This allows connection to the M12x9 connectorized internal flange. Follow the instructions below to assemble the connector.

Step 1: Make sure the integral cable is stripped and cut the grounding wire according to the displayed specifications below.



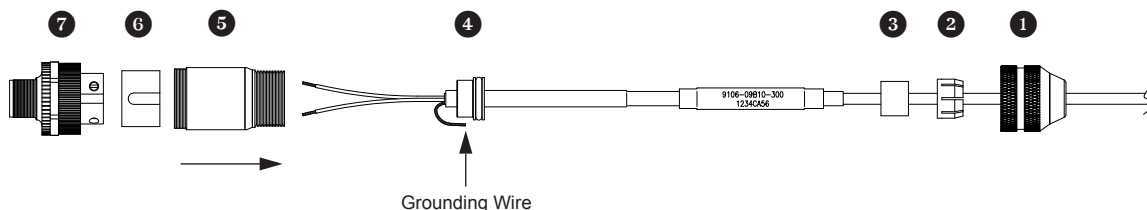
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Step 2: The connector should be disassembled into 7 individual parts.



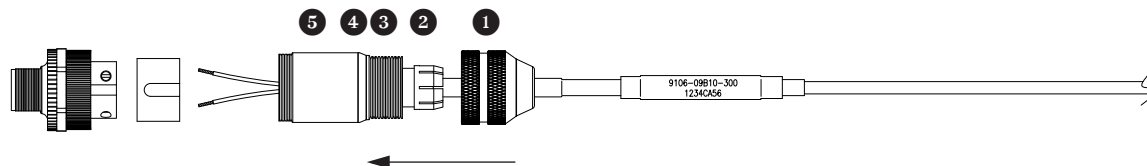
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Step 3: Place the disassembled connector over the integral cable in the following order. Position the grounding wire on the connector casing between parts 4 and 5.



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Step 4: Secure the connector casing by moving over and assembling parts 1, 2, and 3 on previously-assembled parts 4 and 5.

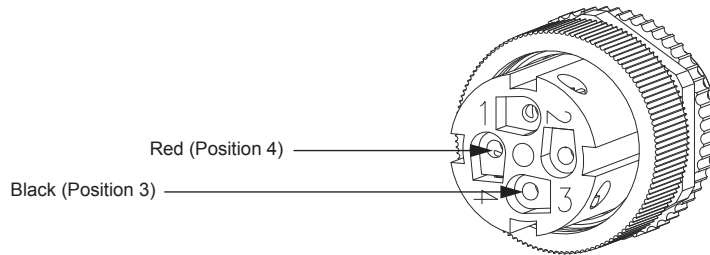


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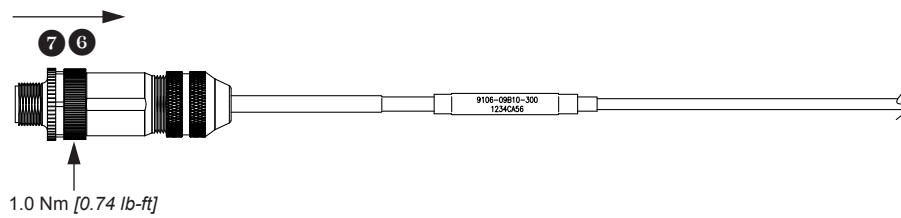


Step 5: Insert the black and red wires in positions 3 and 4 of part 7 and tighten the corresponding pressure screws.



Step 6: Finalize the connector assembly by moving over and securing parts 6 and 7.

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The integral cable can now be connected to the female M12 to female M12, 1.5 m [4.9 ft] shielded cable.

